CIAO
Creative Ideas & Architecture Office

166 | FIRE SAFETY STRATEGY
Haydon House, 296 Joel Street, HA5 2PY
Westgold Holdings Ltd

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1.0
INTRODUCTION

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CIAO has been engaged by Westgold Holdings Ltd to provide fire engineering services for the proposed development: Haydon House, 296 Joel Street, HA5 2PY.

Purpose of Report

The purpose of this report is to demonstrate to the approving authorities that the proposed building satisfies all functional requirements of the Building Regulations 2010 (as amended) and to outline the Fire Safety Strategy to the design team.

Basis of Report

This Fire Safety Strategy has been developed based on the information and drawings provided by **CIAO.**

Limitations of Report

The Fire Safety Strategy represents only the best judgement.

Minimum Requirements

This report outlines the minimum requirements to satisfy the functional requirements of Part B of Schedule 1 to the Building Regulation 2010 (as amended).

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The scheme is for the demolition of the existing building and the erection of a four storey building containing 13 self contained flats at Haydon House, 296 Joel Street, HA5 2PY.

The top storey is located 9.58 m above ground level.

Design Guidance and Legislation
The development is generally to be designed in accordance with Approved Document B – Volume 1:2019 (ADB1:2019).

Evacuation Strategy
The evacuation strategy for the residential units is based on a total evacuation strategy where all the occupants within the building evacuate. Any additional evacuation is at the discretion of building management and the local Fire Service.

Fire Detection & Alarm Systems
The minimum required fire detection and alarm system category for the residential units is Grade D Category LD2. Fire detection and alarm systems within the residential units are to be designed, installed, and commissioned in accordance with BS5839-6:2019.
The common residential areas (e.g. corridors and stairs) are to be provided with a smoke detector systems and fire extinguisher.

Structural Fire Protection
For the purposes of the Fire Safety Strategy, the top occupied storey of the building is 9.58 m above ground level. Therefore, the required fire resistance for the elements of structure is 30 minutes.

Fire Service Access
The communal stair gives the possibility to fire services to access to the 13 residential apartments.

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FIRE STRATEGY

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Building Overview

The scheme is for the demolition of existing building and erection of a four storey building comprising 13 self contained flats, with associated bins and cycle storage and car paking spaces at 296 Joel Street, HA5 2PY.

The top storey is located 9.58 m above ground level.

General Arrangements

The building consists of 13 apartments distributed over ground, first, second and third floor. The flats are connected by a central core containing a communal staircase & lift.

Legislation

The following sections provide an outline of the regulations and guidelines on which the Fire Safety Strategy is based.

The Building Regulations 2010
The building work will be subject to control under the restrictions of the Building Regulations 2010 (as amended). The Building Regulations are concerned with the life safety of persons in and around a building.

The development will be designed and constructed to satisfy the functional requirements of Part B (Fire Safety) to Schedule 1 of the Building Regulations 2010 (as amended), which includes the following:

- B1 – Means of warning and escape
- B2 – Internal fire spread (linings)
- B3 – Internal fire spread (structure)
- B4 – External fire spread
- B5 – Access and facilities for the Fire Service

Evacuation Strategy
The evacuation for the residential units is based on a stay put evacuation strategy. It is based on the principle that a fire is contained in the flat of origin and common escapes routes are maintained relatively free from smoke and heat. It allows occupants, some of whom may require assistance to escape in the event of a fire, in other flats that are not affected to remain.

Fire Detection and Alarm System
Fire detection and alarm systems are designed to give warning of fire at an early stage to enable all occupants to evacuate the building safely, before the escape routes are impassable owing to the presence of fire, smoke or toxic gases.

The Apartments
All dwellings should will a fire detection and alarm system, minimum Grade D2 Category LD3 standard, in accordance with the relevant recommendations of BS 5839-6.
Smoke alarms will be mains operated and conform to BS EN 14604.
Heat alarms will be mains operated and conform to BS 5446-2.
Smoke and heat alarms will have a standby power supply, such as a battery (rechargeable or non-rechargeable) or capacitor.
All the flats have been provided with an internal 30 min fire resistant hallway.

Communal Residential Areas
Detection and alarm system in the common residential areas is to be designed, installed and commissioned in accordance with BS5839-1:2017.

HORIZONTAL MEANS OF ESCAPE

Internal Unit Layouts
In apartments the total travel distance from any room door and to the entrance door of the apartment is limited to 9m.

All Common Corridors / Lobbies
In accordance with Figure 7 of BS9991:2015, all apartments will open into a common corridor, or lobby, which is not separated from the stair. In these scenarios, the travel distance should not exceed 7.5m from the apartment entrance door to the stair (or other place of relative safety).
On all floors, travel distance from the entrance door to the stair door is less than 7.5 m, and are therefore compliant.

Ancillary Accommodation travel Distances
Not relevant.

Number of Escape Routes
In the event of a fire within the building, occupants should be provided with a sufficient number of exits to ensure a prompt evacuation of the building prior to escape routes becoming blocked by the effects of fire and smoke.
The minimum number of escape routes required from each area is determined based on the maximum expected occupancy of the area as outlined in Table 1.

MAXIMUM EXPECTED OCCUPANCY	MINIMUM NUMBER OF EXITS
UP TO 60	1
61-600	2
MORE THAN 500	3

The building is expected to host 26 people, therefore one mean of escape is considered acceptable.

VERTICAL MEANS OF ESCAPE

Required Stair Widths
The unobstructed width (measured between the walls and/or balustrades) of each stair will be not less than 1000mm. Handrails and strings that do not intrude more than 100mm into these widths may be discounted when calculating stair width.

Escape Signage
Escape signage is to be provided within the common escape routes. Escape signage is to be designed and installed in accordance with BS5499-4:2013. Signage utilised throughout the building is to be consistent and in accordance with BS ISO 3864-1:2011.t
The Regulatory Reform (Fire Safety) Order (RRFSO) regulations shall apply to this development and are the landlord's responsibility.

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INTERNAL FIRE SPREAD

Elements of Structure

For the purposes of the Fire Safety Strategy, the top occupied storey of the building is 9.58 m above ground level. Therefore, the required fire resistance for the elements of structure is 30 minutes.

The structure of the roof and the structure that supports only the roof need not to be fire rated unless the roof:

• Forms part of an escape route; or

• Function as a floor; or

• Is part of a portal frame structure where the roof and the supporting stanchions form a single element of structure; or

• Is integral to the stability of a fire-resisting external wall.

Compartmentation

In accordance with Clause 17 of BS9991:2015:

• All floors containing residential units are to be designed as compartment floors achieving the same level of fire resistance as required for elements of structure;

• All residential units are to be separated from all other areas of the building by at least 30-minute fire rated construction (FD3S fire doors on to common corridors).

Additional Fire Resistance Requirements

Fire resistance to achieve the required compartmentation and protection to escape routes is to be provided in accordance with BS9991:2015

Ductwork

Where air handling ducts pass through compartmentation / fire-resisting construction, the integrity of these compartments should be maintained.

Fire Stopping

If the fire separating element is to be successful, every joint or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by sealing or fire stopping so that the fire resistance of the element is not impaired. Fire stopping is to be provided at the following locations:

• In line with fire rated walls and floors where there is a penetration of the wall/floor in order to maintain the fire resistance integrity of the wall/floor;

• Between fire rated walls/floors and an external wall to ensure the fire resistance integrity of the wall/floor is maintained to the external wall.

Fire stopping will be installed only on the new external walls and windows.

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Fire Spread to Adjacent Properties

In order to prevent fire spread between properties it should be ensured sufficient separation distance is provided between fire compartments within the building and the relevant boundaries based on the extent of unprotected area to the fire compartments.

External fire spread analysis has been conducted based on the Building regualtions B Volume 1 2019.

As reported in the table Table 10.1 "Reaction to fire performance of external surface of walls" a building with an height less than 18 m don't need any provision if the external walls are far 1000mm or more from the relevant boundary, conversely the material with Class B-s3, d2(2) or better must be used when the walls are less than 1000 mm far from the boundary.

Where the distance between the external walls AD THE NEIGHBOURS is less than 1000 mm all the proposed materials will be compliant with the Class B-s3, d2(2).

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The following section describes the arrangements for firefighting provisions in the event of a fire in order to comply with B5 of Schedule 1 to the Building Regulations 2010 (as amended).

Firefighting Access

Firefighting access to Stair will be from the Ground Floor.
the following provisions will be made.
Provide access for a pumping appliance to within 45m of all points inside each flat of a block, measured along the route of the hose

The maximum distance between the fire track and the furthest point in the building is 32m.

Fire Appliance Access Specification

Where access for a fire appliance is required for the purposes of the Fire Safety Strategy it is to meet the following requirements:

- The minimum width between kerbs on fire tender accessible roadways is to be no less than 3.7m;
- The minimum width of a fire tender accessible gateway is 3.1m;
- The minimum clearance height is to be no less than 3.7m;
- Minimum turning circles between kerbs is 26.0m and between walls is 29.0m;
- The minimum carrying capacity should be no less than 12.5 tonnes.

The fire appliance should not have to reverse more than 20m, if this is the case the route should be provided with a turning circle or hammerhead.

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This section describes the fire protection systems to be provided with the development in order to ensure the safety of occupants and Fire Service personnel in the event of a fire.

Emergency Lighting

Emergency lighting and fire extinguishers are to be provided throughout the development designed, installed and commissioned in accordance with BS5266-1:2016 and building regulations document B.

All dwellings will have a fire detection and alarm system, minimum Grade D2 Category LD3 standard, in accordance with the relevant recommendations of BS 5839-6.
1.2 Smoke alarms should be mains operated and conform to BS EN 14604.
1.3 Heat alarms should be mains operated and conform to BS 5446-2.
1.4 Smoke and heat alarms should have a standby power supply, such as a battery (rechargeable or non-rechargeable) or capacitor. More information on power supplies is given in clause 15 of BS 5839-6.

In addition, all the flats have been provided with an internal 30 min fire resistant hallway.

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Smoke and fire spread are major causes of property, contents and business interruption losses. Consideration may be given to the introduction of additional fire protection systems for property protection. Such measures would serve to reduce the cost of damage replacement to structural elements and architectural features due to fire and smoke. Fire protection systems may also help in ensuring business continuity by reducing the 'down time' to repair fire damage within the building.
Property protection measures also provide benefit in enhancing the life safety provisions for building occupants and the Fire Service beyond the requirements of the minimum statutory obligations.

External Wall Construction

It is currently proposed for all materials used within the external wall construction to be Class A1 (euro class) [i.e. non-combustible materials] materials in the external wall construction to further restrict the spread of flame via the façade to provide an enhanced level of life safety. This enhancement would not only provide benefit with regard to occupant life safety but may also provide property protection and building insurance premium reductions.

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APPENDIX A

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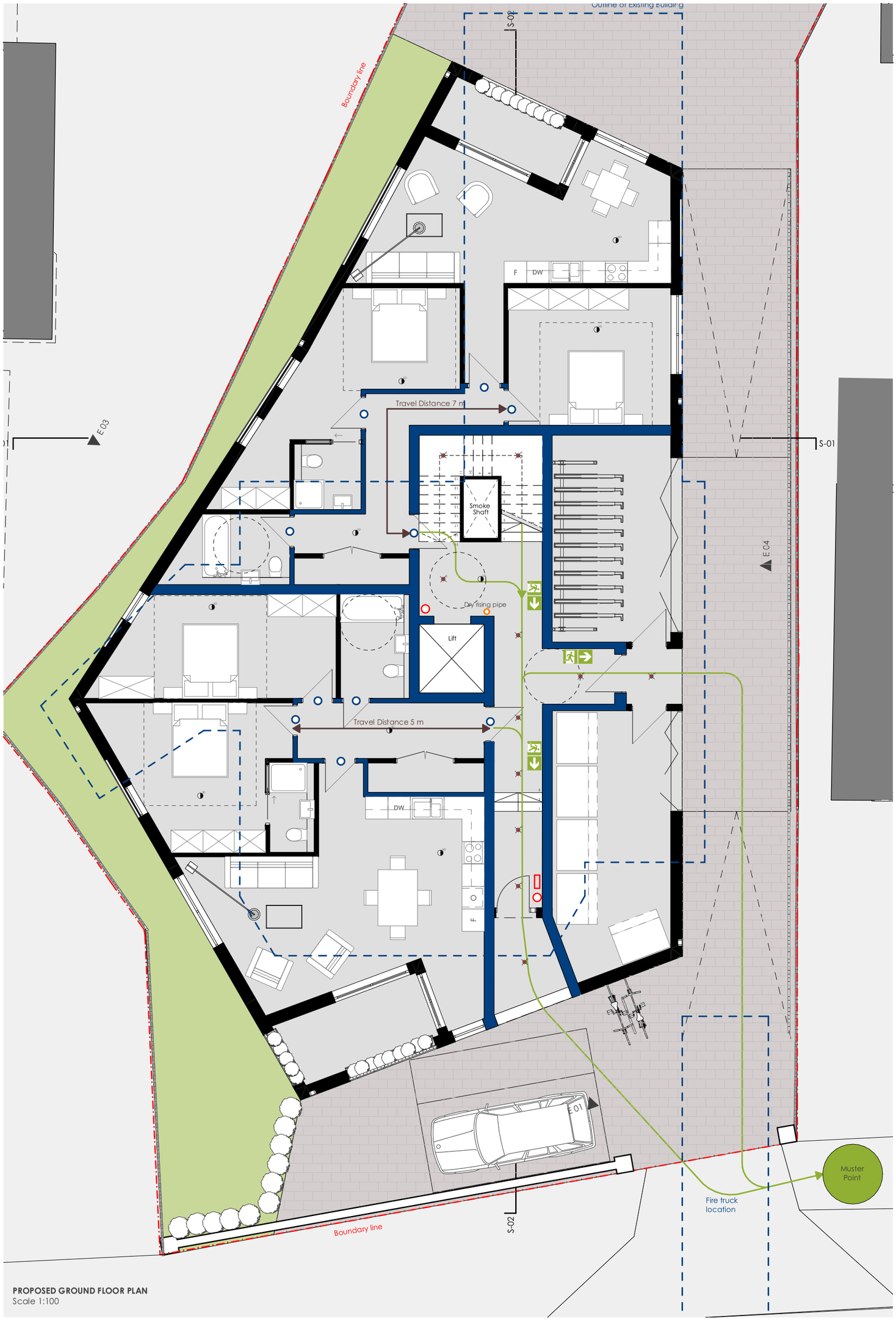

PROPOSED GROUND FLOOR PLAN
Scale 1:100

Notes
1. All dimensions to be checked on site.
2. All dimensions are to masonry unless otherwise stated (ie not plaster finishes)
3. All information is to be checked and verified by the contractors and sub-contractors for accuracy and fit.
4. Discrepancies or omissions to be brought to the attention of **CIAO** prior to construction.
5. This drawing has been drawn to scale,as shown, for the purpose of obtaining local authority approval
6. For General Notes refer to Drawing No. 4GN-01

KEY

- Existing
- Proposed
- Single travel distance
- SD Smoke Detector & Sounder
- HD Heat detector
- Fire extinguisher
- Fire escape route sign
- E Emergency Recessed low voltage luminaire
- Myst Myst fire suppression system
- 30 min fire rated walls
- Fire alarm control panel
- FD30S Fire door
- Fire escape route
- Dry raising pipe

NOTE: all ground and first floor windows to be escape windows

Rev	Date	Notes

Client: Westgold Holdings LTD	**Stage:** Planning	**Date:** 07/10/2022	
Project: Haydon House, 296 Joel Street, HA5 2PY	**Project Ref. No:** 166	**Scale:** 1:100@A3	
Drawing title: Proposed Ground Floor - Fire strategy	**Drawing number:** 166-3GA-08	**Drawn By:** LP	**Checked By:** AP

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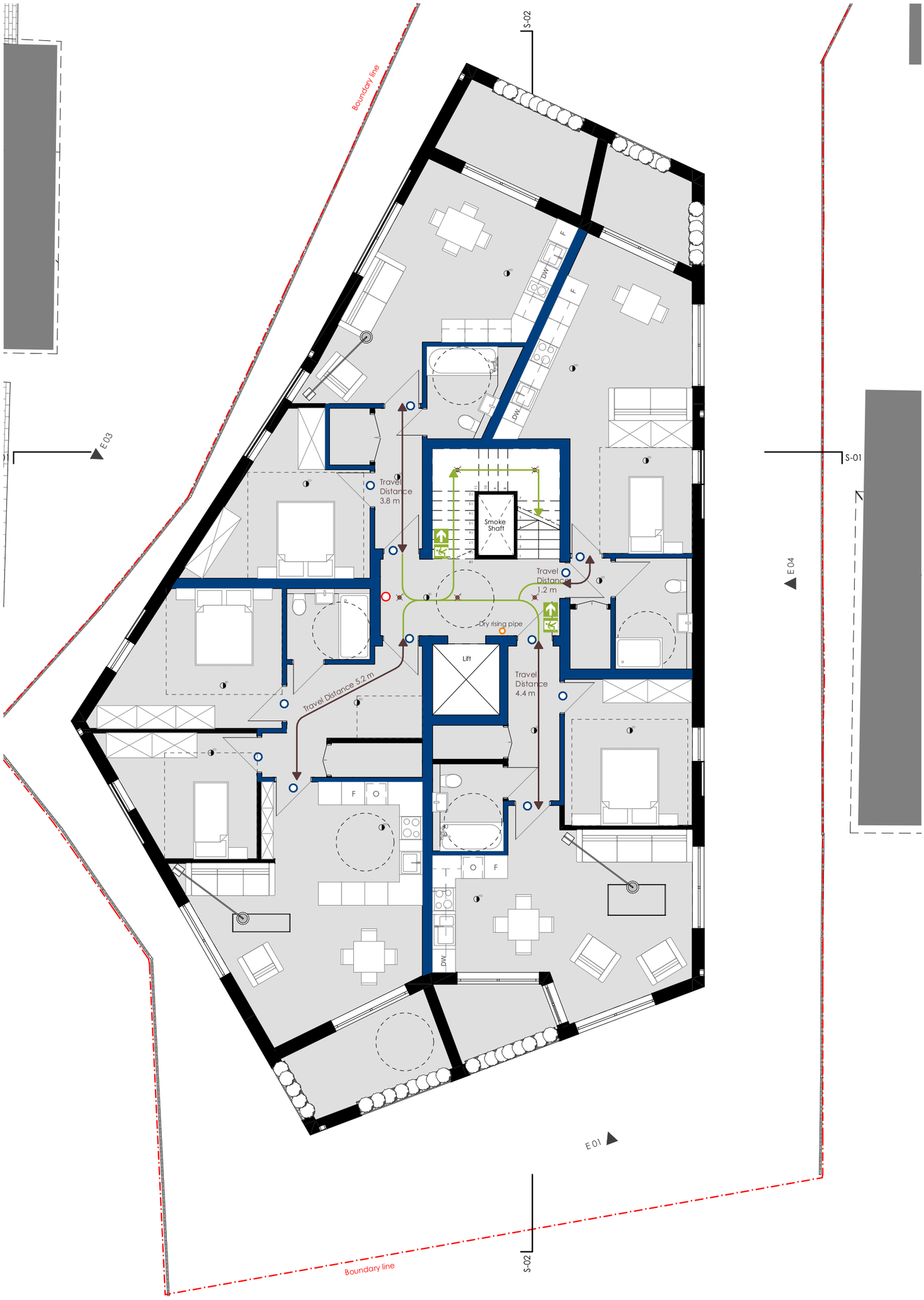

PROPOSED FIRST FLOOR PLAN
Scale 1:100

Notes
1. All dimensions to be checked on site.
2. All dimensions are to masonry unless otherwise stated (ie not plaster finishes)
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4. Discrepancies or omissions to be brought to the attention of **CIAO** prior to construction.
5. This drawing has been drawn to scale,as shown, for the purpose of obtaining local authority approval
6. For General Notes refer to Drawing No. 4GN-01

KEY

Existing | Proposed | Single travel distance | SD Smoke Detector & Sounder | HD Heat detector | Fire extinguisher
Fire escape route sign | E Emergency Recessed low voltage luminaire | Myst Myst fire suppression system | 30 min fire rated walls
Fire alarm control panel | FD30S Fire door | Fire escape route | Dry raising pipe

NOTE: all ground and first floor windows to be escape windows

Rev	Date	Notes

Client: Westgold Holdings LTD	**Stage:** Planning	**Date:** 07/10/2022	
Project: Haydon House, 296 Joel Street, HA5 2PY	**Project Ref. No:** 166	**Scale:** 1:100@A3	
Drawing title: Proposed First Floor - Fire strategy	**Drawing number:** 166-3GA-09	**Drawn By:** LP	**Checked By:** AP

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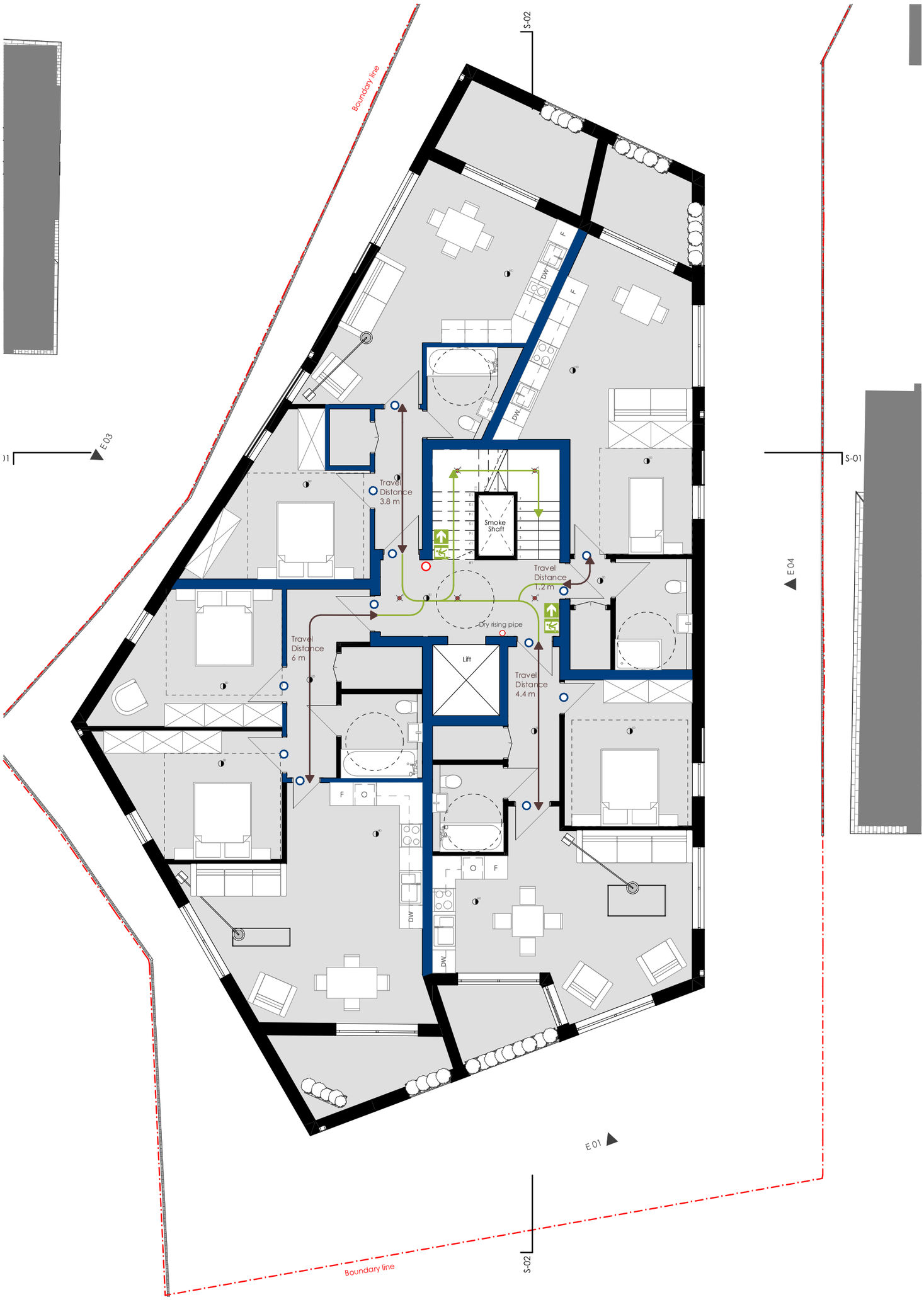

PROPOSED SECOND FLOOR PLAN
Scale 1:100

Notes
1. All dimensions to be checked on site.
2. All dimensions are to masonry unless otherwise stated (ie not plaster finishes)
3. All information is to be checked and verified by the contractors and sub-contractors for accuracy and fit.
4. Discrepancies or omissions to be brought to the attention of **CIAO** prior to construction.
5. This drawing has been drawn to scale,as shown, for the purpose of obtaining local authority approval
6. For General Notes refer to Drawing No. 4GN-01

KEY

- Existing
- Proposed
- Single travel distance
- SD Smoke Detector & Sounder
- HD Heat detector
- Fire extinguisher
- Fire escape route sign
- E Emergency Recessed low voltage luminaire
- Myst Myst fire suppression system
- 30 min fire rated walls
- Fire alarm control panel
- FD30S Fire door
- Fire escape route
- Dry raising pipe

NOTE: all ground and first floor windows to be escape windows

Rev	Date	Notes

Client: Westgold Holdings LTD	**Stage:** Planning	**Date:** 07/10/2022	
Project: Haydon House, 296 Joel Street, HA5 2PY	**Project Ref. No:** 166	**Scale:** 1:100@A3	
Drawing title: Proposed Second Floor - Fire strategy	**Drawing number:** 166-3GA-10	**Drawn By:** LP	**Checked By:** AP

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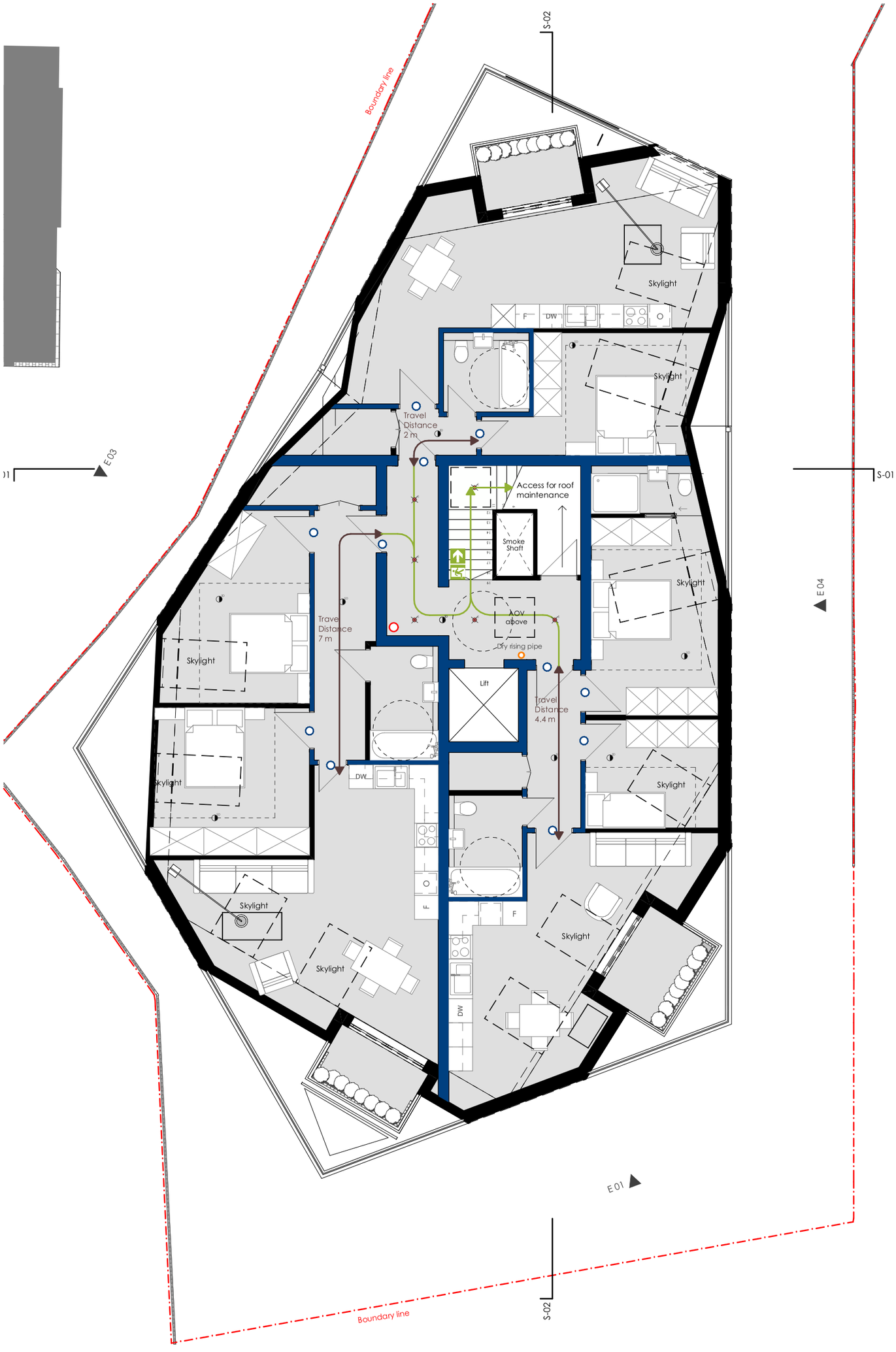

PROPOSED THIRD FLOOR PLAN
Scale 1:100

Notes
1. All dimensions to be checked on site.
2. All dimensions are to masonry unless otherwise stated (ie not plaster finishes)
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4. Discrepancies or omissions to be brought to the attention of **CIAO** prior to construction.
5. This drawing has been drawn to scale,as shown, for the purpose of obtaining local authority approval
6. For General Notes refer to Drawing No. 4GN-01

KEY

- Existing
- Proposed
- Single travel distance
- SD Smoke Detector & Sounder
- HD Heat detector
- Fire extinguisher
- Fire escape route sign
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- Myst Myst fire suppression system
- 30 min fire rated walls
- Fire alarm control panel
- FD30S Fire door
- Fire escape route
- Dry raising pipe

NOTE: all ground and first floor windows to be escape windows

Rev	Date	Notes

Client: Westgold Holdings LTD	**Stage:** Planning	**Date:** 07/10/2022	
Project: Haydon House, 296 Joel Street, HA5 2PY	**Project Ref. No:** 166	**Scale:** 1:100@A3	
Drawing title: Proposed Third Floor - Fire strategy	**Drawing number:** 166-3GA-11	**Drawn By:** LP	**Checked By:** AP

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